

# Perfect Engineering - Achieving Perfection



Professor Melhem

Perfect Engineering Pty. Ltd. is an industry-leading Tier 2-3 contractor in Sydney that specialises in difficult and challenging projects that often require innovative approaches to the full scope of engineering services. A key strength of Perfect Engineering is that it has rigorous professional systems and extensive technical capabilities in place and these allow the company to excel at many types of projects requiring innovative design, implementation, and performance solutions. These solutions encompass mechanical, structural, and civil disciplines, in all three of which Perfect Engineering has Engineers Australia accreditation. Over the years of its existence, Perfect Engineering has developed expertise in steel and aluminium fabrication, structures, infrastructure, roadworks, bridgeworks, earthworks, water services, and rectification, amongst other areas.

Founded in October 2003, Perfect Engineering has gained an enviable reputation for being willing and able to undertake projects that have been turned down by other, often larger, construction companies. This often has involved new designs, corrections to existing designs, working under tight time constraints, and completing work to a standard that reflects the intentions implied by the company's name. Some of the more notable examples of projects that have required these abilities include:

- 2003 Design/construct and certify for QANTAS aerospace components
- 2004 Design and construction for M4/M7 Freeway circular-to-elliptical bridge pylons for Leighton Contractors/Abigroup
- 2005 Design and rectification of steel and aluminium structures on Westfield Bondi rooftop and façade for Multiplex Westfield
- 2008 Design and construction of continuous movable concrete casting system for Domain Tunnel barriers for NSW Roads and Traffic Authority (RTA)
- 2010 Design, fabrication, and installation of demountable wharf for twelve locations around Sydney Harbour for NSW Maritime
- 2010 Design and construction of foundations and large steel structure on an unstable site for NSW Department of Public Works



- 2014 Design and construction of steep cliff face shoring and road-widening in limited area for NSW Roads and Maritime Services and DownerMouchel

"Perfect is a one-stop shop for essentially all engineering needs that can be met by a small integrated team of specialist experts who can respond rapidly and effectively to challenging situations," says Professor Adj. George N. Melhem, Director of Perfect Engineering, who holds the position of Adjunct Professor, School of Materials Science and Engineering, University of New South Wales (UNSW). "The company is unique in that its engineering activities are underpinned by an academic approach based on an appreciation and an understanding of design, materials, processing, implementation, and performance." Perfect Engineering probably is the only engineering firm to be led by a Director whose work consistently is informed by the company's depth of academic strength in metallurgical engineering and ceramic engineering. This is shown very clearly by the rectification work on the Westfield Bondi rooftop and façade, which provided the basis for Professor Melhem's Ph.D. thesis in Materials Science and Engineering, UNSW, in 2008. Over its 11 years in the industry, Perfect Engineering has grown continually and expanded its range of services. The company got off to a good start by obtaining the gold standard for quality, ISO 9001 certification, only 11 months after commencement of company



operations. By 2005, Perfect Engineering became one of the few Engineering, Procurement, and Construction Management (EPCM) firms to qualify for R&D Tax Concession status by AusIndustry, which again emphasises the academic strength of the company. Over the next few years, Perfect Engineering obtained accreditation for its main professional systems, culminating in prequalification for structural steelwork, metalwork, building works, and civil works from the NSW Department of Commerce in 2009. The next 4 years saw further accreditations and, finally, the jewel in the crown of R1/B1 prequalification (Roads/Bridges up to \$2 million) from the NSW Roads and Maritime Services (RMS). With his most recent work in construction, Professor Adj. Melhem now considers Perfect Engineering to be, "...in a position to go from R1/B1 to R1/B4 in order to get bridgework projects around \$4 million. Ideally, our principal clients would be Government bodies, such as NSW RMS, NSW Department of Public Works, and Sydney Water."

### A team of high-calibre individuals

Professor Melhem credits the company's success to its highly skilled team of experts, which includes Compliance Manager John Louth, R&D Manager Professor Charles C. Sorrell, Project Manager Karl Peisto, Project Engineers Alex Eremenko, Miro Bumba, Quality Manager Fadi Gemayel, Administrative Manager Tijana Stetic, Ph.D. student engineer Supphatuch Ukritnukun, and an assortment of university Industrial Training (IT) students from all of the major Universities in NSW that intern for the company.

"This is our core team, and it's a team that consists of high-calibre individuals," he adds. "For example, our Compliance Manager, John Louth, worked previously as the Director of a mining company, where he had ten or fifteen engineers reporting to him. Our Research and Development (R&D) Manager, Professor Charles C. Sorrell, also teaches Ceramic Engineering at UNSW. Our Project Manager, Karl Peisto, has about 40 years of experience in bridge building and general construction. Everyone on our team is extremely skilled and they're all long-term employees." He also points out that Perfect Engineering's corporate philosophy allows the company to offer, "...very strong technical capabilities owing to the concentrated skill of its relatively small team." Each member of the Perfect Engineering team brings a different background to the table, which fosters an atmosphere of creative thinking and collaboration.

Additionally, the diverse skill set that each employee offers allows

the company to complete entire projects in-house, which increases the speed and efficiency of the process while eliminating additional costs. "In many cases, our projects require a bit of innovation," Dr. Melhem says. "For example, the pylons for the M4-M7 Freeway bridge required innovation in terms of design and fabrication. It wasn't an easy feat but we actually sped up the entire project by about 4-6 months owing to the skill and expertise of our Perfect team." He adds, "Right now, we're doing a project for the NSW RMS at a value of \$3 million. This project presents significant geotechnical issues, civil engineering issues, structural issues, safety issues - the list goes on and on. The project is probably worth closer to \$4-5 million but we're able to do it for \$3 million because we do everything in-house. In this sense, we set ourselves apart from others." This level of service and cost-efficiency are very attractive to clients, which aids Perfect Engineering in earning the loyalty of their clientele and, subsequently, repeat business. "We get feedback from our clients every year and our scoring always has been over 90% on everything," says Professor Melhem.

Consistent with these comments is the fact that Perfect Engineering also maintains longstanding relationships with its approved suppliers and subcontractors. According to Professor Melhem, the company has been working with mostly the same partners since they started.

### Not just hyperbole

In addition to obtaining R1/B4 to expand its bridgework capacity, Perfect Engineering has a list of other goals that it's working toward in order to facilitate further expansion. This includes enhancing its R&D relationship with UNSW and transitioning to become one of the some one hundred Tier 2 companies within the next 5 years. Professor Melhem admits, "We'd like to be up there with the bigger companies. Right now, we're looking for projects in the \$1-5 million range but that certainly will increase as we grow further." Professor Melhem emphasises that Perfect Engineering will not, "...sacrifice quality for the sake of achieving rapid expansion. The company's name isn't just hyperbole. The reason that it's named Perfect Engineering is because we want to achieve perfection. So we do only one, maybe two, major projects at a time but never more than that. That's how we keep on top of the quality. If we can't have the same core team on every project, then it won't work the way I want it to work."

Written by Nandy Sukkarieh